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Transformation of Agriculture in Central Eastern Europe and the Former USSR

Major Policy Issues and Perspectives

Csaba Csáki

The former USSR could become self-sufficient in food, but in the medium term will probably remain a net agricultural importer — if it can persuade exporters to extend credit. But Central Eastern European agricultural exports are likely to expand. Central Eastern Europe could become a tougher, more aggressive player in agriculture, principally in the markets for more demanding food products — especially pork, poultry, and fruits and vegetables.

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This paper — a joint product of the Agricultural Policies Division, Agriculture and Rural Development Department, and the Socialist Economies Reform Unit, Country Economics Department — is part of a larger effort in the Bank to analyze the transformation of agriculture in the former socialist countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-039, extension 30464, or by electronic mail (April 1992, 32 pages).

Csáki surveys agricultural reform to date, identifies key policy issues, and outlines potential scenarios for the transformation of agriculture in Bulgaria, Czechoslovakia, the former GDR, Hungary, Poland, Romania, and — to a lesser extent — the former USSR.

After decades of socialism, these countries' agricultural sectors are characterized by large, inefficient farms with high production costs; heavier food consumption than in market economies of comparable prosperity, and excess demand for food, at subsidized food prices; macroeconomic imbalances, including inflation, budget deficits, and foreign debt; and a monopoly in food processing and distribution.

Central Eastern Europe is beginning to create a new agricultural structure based on private ownership, real cooperatives, and a market economy. The former USSR is also striving to overcome serious economic difficulty with comprehensive economic and political reform but is in a far earlier stage of agrarian reform. To develop a market-oriented, competitive agricultural structure, these countries need to:

• Create marketable landed property (Csáki discusses several ways to do this).

• Change agriculture's structure to emphasize medium-size private agricultural ventures and various cooperatives (whose future is a heavily debated issue), together with state or communal farms.

• Change government's role, reassessing the agricultural sector as part of the macroeconomic framework. This involves liberalizing consumer and producer food prices, eliminating food subsidies, and providing an extension service and network.

• Create a government environment supportive of private ventures and the transformation of the cooperative sector. The government's role should be to create physical facilities for farmers' markets and a wholesaling network for private farming.

• Create a real agricultural market that encourages fair competition. This means fully eliminating food subsidies within a few years and eliminating the state monopoly on foreign trade.

• Develop agricultural policy that emphasizes efficient production and income parity among agricultural producers. This means developing a new legal framework, including, among other things, a land law that defines ownership and land use rights and defines the processes for distributing ownership titles, handling former owners' claims, and transferring land and other assets of cooperatives to private ownership.

• Support environmentally sustainable agricultural production technologies and better environmental protection.

In analyzing future possibilities for, and influences on, the region's agricultural markets, Csáki focuses on these questions: What will the trend in food production be, particularly for grain and meat? Will food consumption increase, and how will that affect domestic markets? How will the international market change? How much will conditions of trade policy improve for agricultural exports, and how will relations among countries change?

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Transformation of Agriculture in Central-Eastern Europe and the Former USSR: Major Policy Issues and Perspectives

Central-Eastern Europe and the former USSR are undergoing fundamental economic and political transformation. Far-reaching changes, surpassing the reforms of earlier years, characterize the agrarian economy of Central-Eastern Europe, where the creation of a new agricultural structure based on private ownership, real cooperatives, and a market economy has begun. The former USSR is also striving to overcome serious economic difficulties with comprehensive economic and political reforms. This process has not yet been completed in any of the countries concerned: many details have yet to be clarified, especially in the former USSR, and there is much uncertainty regarding future developments. All these changes, however, will fundamentally reshape agriculture in the region and influence its behavior and role in international agrarian relations.

In analyzing the major policy issues related to the transformation of agriculture in the region, this paper surveys Bulgaria, Hungary, the former GDR, Poland, Romania, Czechoslovakia, and the former USSR. First, the paper examines the region's agricultural sector, from both domestic and international perspectives. It then explores the sequence of agricultural reforms that has brought the region to its current transitional stage. Major issues in the transformation to a market economy are identified, and finally, future scenarios are outlined. (Because of the preliminary stage of transformation in the former USSR, the discussion of major issues of transformation is mainly based on the experience of the Central-Eastern European countries.)

Agriculture in Central-Eastern Europe and the Former USSR

Agricultural Production

Central-Eastern Europe and the former USSR account for about 20 percent of the world's arable land and 8 percent of the world's population (table 1). The region has 12 to 16 percent of the world's livestock, with production of pigs and poultry dominant and cattle raising lower than average. Over 17 percent of the global pig stock and 12 percent of cattle stock are found in the region.

Industry is a dominant economic sector in the region, although the importance of the agrarian sector is stronger than in most developed countries. The share of agriculture in net national production is between 8 and 20 percent. The former GDR and Czechoslovakia account for the lowest shares, and Hungary and Romania for the highest. The share of the economically active population employed in the agricultural sector in the former GDR is 8.4 percent; in Czechoslovakia, 9.8 percent; in Hungary, 13.5 percent; in Bulgaria, 13.3 percent; in the former USSR, 14.2 percent; and in both Poland and Romania, 22 percent (table 1). In view of absolute volume and proportion within the economically active population, the agricultural population is decreasing, but the decrease in the number of agricultural workers slowed in the second half of the 1980s.

Generally, the natural conditions for agriculture are favorable in the region. The countries of Central-Eastern Europe have a temperate continental climate. In Poland, the former GDR, and Czechoslovakia, the climate is more humid and cool, and the soil quality is weaker. In Romania, Hungary, and Bulgaria, however, agricultural conditions are above average. The former USSR has vastly diverse agroecological conditions; however, it also has tremendous potential for agricultural production, especially considering its low population density-to-agricultural land resources ratio.

The region has 271.3 million ha of arable land. Decrease in agricultural area has occurred in only some of the countries (in the 1970s, the opposite occurred), and the decrease in tillage area has also slowed in these countries. The proportion of agricultural area to total territory differs in each country. Whereas in Hungary this proportion is 70.5 percent, in Czechoslovakia it is 53.3 percent. The former USSR has the lowest proportion—13.3 percent.

Agriculture in the region developed quickly in the first half of the 1970s, but then slowed (table 2). In the early 1970s, annual production growth was about 3 percent. By the mid-1980s, it was 1.5 to 2.5 percent, differing among countries. By the end of the 1980s, differences among countries became more discernible. As table 2 indicates, agricultural performance has varied widely in the region over the last two decades. Average annual output in monetary terms in constant prices rose most in Czechoslovakia, the former GDR, Romania, and the former USSR. In the remaining countries, annual growth was slower. Net output growth, however, was much smaller and intercountry differences less marked. Regardless, annual agricultural growth of more than 2 percent, which is characteristic of the entire region in the long run, is remarkable, even in international terms.

The enormous annual fluctuation in production growth in each country is striking. This phenomenon has been exaggerated in recent years by the obvious impacts of political and economic change. Decrease in agricultural production growth occurred in tandem with the decrease in general economic as well as industrial development. In other economic sectors, the decrease was often greater than that in agriculture, so agricultural growth approached the level of general economic development.

In all the countries, a primary agropolitical objective was to increase food self-sufficiency, particularly to develop grain production. The proportion of grain crops within the sowing area stabilized at about 54 to 58 percent by the mid-1980s. (Grain production development is shown in table 3.) Despite the increasing quantity of grain produced in most countries (as a result of improved yields), imports were still needed to satisfy increasing demand. Although the balance of grain trade of the seven countries studied is negative, Hungary exports a considerable amount of grain, about 2 million mt annually.

The outgrowth of average yields in plant cultivation illustrates past paradoxical developments. Table 4 presents the average yields of selected major crops. Relatively poor outputs and high annual fluctuations in output characterize plant cultivation in all the studied countries. Only the specific outputs of plant cultivation in Hungary, the former GDR, and Czechoslovakia approach the output levels of the agricultural sector of Western Europe.

In animal husbandry, after the relatively dynamic growth of the 1970s, the livestock population barely increased in the region in the 1980s; there was even a decline in cattle and sheep raising, and, in Central-Eastern Europe, of poultry breeding. During that decade, plant production development did not keep pace with the change in the livestock population, and in practically all countries the proportion of animal husbandry in agricultural production increased.

In the region, large-scale agricultural units (cooperatives and state farms) predominate in animal husbandry. Generally, the share of household plots and small farms (i.e., private production) in animal husbandry is greater than that in plant production, particularly in Poland and Hungary, where private producers maintain more than half of the livestock.

The standard of animal husbandry is lower than in developed European countries. This is reflected in the breeds maintained, in the level of animal hygiene, and especially in the unfavorable fodder utilization rate. Important quality requirements for modern processing and healthy nutrition (e.g., less fat) are not given sufficient emphasis either in breeding or in fattening. In the region, substandard conditions in animal husbandry are greater than in plant production.

The situation differs considerably by country, where differences are found in livestock composition, level of development, and growth rate. Animal husbandry is relatively developed in the former GDR, Czechoslovakia, and Hungary and, partly, in Poland, whereas in Bulgaria, Romania, and especially the former USSR, it is underdeveloped. Recent changes have affected animal husbandry in the region: In Poland, Hungary, and, to a lesser extent, Czechoslovakia, animal husbandry has become critical, and a decline in production has resulted from declining consumer demand because of price liberalization and export problems (such as the collapse of the Council for Mutual Economic Assistance [CMEA] and a reduction in export subsidies). In Romania and the former USSR, however, moderate growth in the relatively small animal husbandry subsector continued during 1990.

The trend in meat production is closely related to that of animal husbandry (see table 5). During the past two decades, the growth rate of meat production lagged behind the global rate or development, especially in Central-Eastern Europe, whose share of world output in the past two decades has declined by about 20 percent. Meat production growth in the former USSR has also been slightly below the world average. In 1989, the region accounted for 18 percent of world meat production.

Data in table 6 reflect one aspect of the technical conditions for agricultural production. The total capacity of tractors has grown considerably in the region, although the number of tractors has decreased in Hungary because of structural changes. Development has shifted toward high-efficiency machines. Over the past years, the replacement of the machine fleet slowed, thus jeopardizing the real utility of nominal capacities, mainly in Poland and Romania.

Increase in chemical fertilizer consumption, measured in effective substance, halted in the second half of the 1980s. In 1988, average fertilizer use on one agricultural hectare was (in active ingredients) 268 kg in Hungary and 310 kg in Czechoslovakia; figures for Romania and the former USSR are 127 kg and 117 kg, respectively. The 1988 world average was 99 kg/ha.

Changes in Food Consumption

In the first half of the 1980s, the standard of living in most of the region was improving, although in a downward degree. In the second half of the decade, however, this trend ended, and in almost every country a visible downturn in the standard of living occurred. This is also reflected in food consumption: in most of the region, calorie consumption per capita had matched or surpassed the Western European standard, reaching 3,300 to 3,500 calories a day, but by the mid-1980s, the growth in food consumption essentially halted. (Table 7 indicates the region's 1989 consumption of major food products.)

In comparison with developed countries, cereal consumption per capita is relatively low. In vegetable consumption, cabbage and tomato dominate. Generally, fruit consumption is low, particularly the consumption of tropical fruits. Meat consumption in several Central-Eastern European countries, such as the former GDR, Czechoslovakia, and Hungary, is close to that of the EC, but in the former USSR, Romania, and Poland, it is well below that of the EC.

Supply used to play a considerable role in the region's food consumption trends. In Poland, Czechoslovakia, and Hungary, the market is now determined by the relationship between supply and demand, and there are no longer food shortages. In the former USSR, Bulgaria, and

Romania, a demand market remains, and the satisfaction of consumer demand depends on the quantities available. Long lines and food shortages prevail.

In 1990, the food market was fundamentally transformed in Poland, Hungary, and Czechoslovakia. The governments ended consumer and producer food subsidies, as well as most agricultural export subsidies. At the same time, consumers' real income declined in the context of general economic difficulties. The substantial food—especially meat—price rise and the reduction of supports modified the earlier relative equilibrium of food markets. With meat price rises of 30 to 40 percent, domestic consumption fell considerably (in Hungary and Poland, by about 20 to 25 percent in 1991), and the dismantling of export subsidies meant that export sales ceased to be profitable. Consequently, unsold stocks accumulated; the reduction in the livestock population accelerated; and production fell. In Poland and Hungary, consumer meat prices are falling for the first time in many years. The obsolete and monopolistic processing industry is responding slowly to these changes, and this adjustment is also new to producers.

Food markets are evolving differently in Romania, Bulgaria, and the former USSR. In 1990 in Romania, production increased as a result of lifting the restrictions of the Ceausescu regime. There was also a quantitative increase in meat production in the former USSR. Nevertheless, supply difficulties in large cities were more serious than previously, although there was a decline in imports. This can be primarily explained not by production trends but by the internal disruption of traditional delivery and supply networks. With relaxed production and supply quotas and strengthened aspirations toward autonomy, there was a substantial decline in the quantity of food delivered to large cities at official prices. Attempts to set price ceilings, affecting the free markets, also had an unfavorable influence on the supply for large urban areas. Concurrently, however, the level of supply in the rural producing areas improved.

International Agricultural Trade

Developments in the region, as well as changes in international agricultural trade, have negatively affected the region's position in world agricultural trade. During the 1970s and 1980s, import demand for agricultural products increased in most of Central-Eastern Europe and the former USSR. These developments reflected unsatisfactory production performance, as well as structural changes in domestic output. The former USSR increased imports of meat and other livestock products, mainly to ease social tensions: imports now account for about 8 percent of total meat consumption, and annual grain imports have risen from almost zero in the early 1970s to over 30 million mt in recent years.

On the export side, Central-Eastern European exports to the West experienced substantial losses of market share, partly because of the effects of protectionism, but also because of underdeveloped processing, quality control, packing, and marketing capacities in the Central-Eastern European countries themselves. Generally, the agroexport structure of these countries has not responded to the new world market. Agrarian protectionism affected most of the studied countries unfavorably. The declining stability of agrarian markets was also reflected in each country's growing self-sufficiency efforts.

Between 1986 and 1989, Central-Eastern Europe and the former USSR together were net importers of agricultural products, amounting to about US$15 billion annually. The former USSR's deficit is about US$14 billion and that of the six other countries around US$1 billion. The six countries can be classified into two groups: the former GDR, Czechoslovakia, and Poland are importers. (In the former GDR and Czechoslovakia, net imports are particularly high. In addition to significant imports, Poland has considerable exports; its net agricultural imports have fallen by about 75 percent over the past 10 years.) Hungary, Romania, and Bulgaria are exporters; Hungary's export surplus is particularly prominent. In 1989, over one-third of total CMEA agroexports came from Hungary.

The region as a whole is a net importer of cereals (averaging around 36 million mt between 1986 and 1989), oilseed (about 2 million mt), oilseed meals (6 million mt), and sugar (5 million mt). Soviet imports alone accounted for about 15 percent of world trade in cereals between 1986 and 1989. Central-Eastern Europe was a net exporter of meat (743,000 mt), whereas the former USSR was a net importer of meat (636,000 mt) during the same period. National differences in import/export structures for agrarian trade are striking. The region as a whole imports substantial amounts of coffee, cocoa, and tropical fruits. Other major imports include cereals, oilseed crops, meat products, fruits and vegetables, and tropical agricultural products. In exports, disregarding Hungary's grain export, meat and meat products, vegetable oil, fresh and processed fruits and vegetables, and cotton (from the former USSR) prevail.

The turnover of agricultural products plays different roles in each country's economy and international trade relations. The proportion of agricultural exports to total exports is highest in Hungary and Bulgaria (25 and 18 percent, respectively). In Czechoslovakia, agricultural products' share in total exports is 6 to 7 percent. On the import side, the proportion of agricultural imports to total imports is highest in the former USSR (16 to 17 percent), and lowest in Romania (less than 10 percent). Disregarding absolute rates, the foreign exchange outlay of agricultural trade and the export returns are important to the balance of payments in the entire region, particularly for the countries with relatively large debt.

Among developed countries, the OECD countries are the most important to the region's agrarian trade. The United States, Canada, and Australia are the major grain and oilseed suppliers. Western Europe is the most significant demand market for the high-quality food products of Central-Eastern Europe, whose share of total Western European agricultural imports, however, is low (2.5 to 2.7 annually). Agricultural exports from Western Europe to Central-Eastern Europe continue to surpass imports. Agrarian export to the non-European OECD countries is not significant, although sales from Romania, Hungary, and Poland to the North American markets (primarily meat products and highly processed foodstuffs) are increasing.

Agrarian trade within the former CMEA region merits attention. Traditionally, the Central-Eastern European countries, especially Hungary, Bulgaria, and, to a lesser extent, Romania and Poland, exported food products to the former USSR according to long-term agreements. In the 1980s about half of Hungarian agrarian exports and more than two-thirds of Bulgarian food products were marketed in the former USSR. This network has been radically disrupted. In the former USSR, energy transportation facilities are increasingly limited, and the balance of payments is not favorable. By the end of the 1980s, this had led to a relatively significant collapse in commercial transactions with several Central-Eastern European countries. Among the countries concerned, Hungary reacted with food export restrictions, unable to grant the credit claimed by the former USSR, given current circumstances. The former USSR is able to obtain food on credit mainly from the developed countries: in the last year, as Central-Eastern European food exports to the former USSR declined, food shipments from the OECD countries accelerated.

The region's agrarian trade with developing countries trails the turnover with the developed market economies, both in value and volume. Exports to developing countries are modest in both value and volume; however, imports from developing countries increased rapidly during the 1980s and include tropical agricultural products, especially coffee, cocoa, and raw materials of agricultural origin. Developing-country share in total agrarian imports is highest in Hungary (over 40 percent).

Early Reform Attempts

In the 1950s and 1960s, the so-called socialist reorganization of agriculture was carried out in the region. It paralleled the collectivization of smallholder agriculture according to the Soviet model. By the mid-1960s, state farms and agricultural cooperatives predominated in the region (except in Poland). The organization of socialist large-scale farms was accompanied by the introduction of central planning through agricultural production directed according to centrally prescribed and planned figures. A recession accompanied the reorganization in all the countries except Hungary. After a relatively short time, there were indications that agricultural production's central administrative direction impeded production, thereby prompting the first phase of reform of socialist agricultural systems in the second half of the 1960s.

The main objective of reform was to change the character of direction. Two sets of reforms emerged: One sought to perfect the planning methods, i.e., the development of the means applied to set the plan targets. The other emphasized decentralization, the increase of companies' independence, and the need for economic incentives. In most countries, reforms that weakened the command character of economic management and pointed toward decentralization were explored, but practical implementation was problematical. Mere publication of reform proposals did not mean introduction of them, and in several countries components of the reforms were actually experimental. Implementation stalled because the countries had difficulty visualizing how to move away from central planning, and inconsistent solutions were the norm. Centralization prevailed, and significant change was carried out only in Hungary, where a new economic mechanism created the basis for rapid agricultural development.

Disregarding Hungary, the reforms of the agricultural management systems were ineffectual; they did not speed agricultural development. Moreover, during 1972-73, the decentralization process of almost every country froze, with political pressure bearing down on existing private production. In the second half of the 1970s, however, a new situation emerged in the region. Changes in the global economy and the oil crisis increased economic tension. It was becoming increasingly clear that in some countries agriculture organized and directed according to earlier methods was unable to keep pace with consumer demand. Thus, the second wave of reforms began. These efforts, responding to the changing economic environment, were directed to the real introduction and implementation of the reforms previously outlined. During this period, the role of planning decreased, but some form of planned direction and the system of obligatory "buying up" were generally entrenched. Prices only partly reflected real costs and value, and the turnover of products was heavily regulated. In sum, the reforms could not reach the basic components of the traditional planning system, and the necessity of political change had not even been seriously put on the agenda.

The third period of agricultural reforms in Central-Eastern Europe began in 1985-86 and lasted until the end of 1989. It was spurred by the region's general economic crisis, setbacks in international development, and, in some countries, mounting debt. The failure of previous reforms and increasing political tensions necessitated radical change, both economic and political. During this period, the central objectives of agricultural reforms were to:

- improve efficiency and quality over mere quantitative production increases;

- move toward a price policy that reflected real production costs;

- increase the role of financial incentives;

- augment firms' decisionmaking autonomy;

- widen the possibilities for private agricultural production.

This third wave of reforms reached countries in different degrees, with the political changes of the second half of the 1980s occurring in various ways. In the former GDR and Romania, companies' decisionmaking autonomy and decentralization could not make inroads; until fall 1989, only the further perfection of methods considered successful was a topic of discussion in the former GDR. The decisionmaking freedom of large companies and farms that integrated crop and livestock cultivation was also limited. Agricultural reform intentions were expressed more clearly in the former USSR; little change, however, occurred. In Bulgaria and Poland, and, to a lesser degree, in Czechoslovakia, the independence of companies, economic incentives, real prices, the role of financial instruments, and the support of private production were all considerably increased and reinforced. In Hungary, where these arrangements had already been put into practice, the decentralization of the food industry and foreign trade was partly carried out. The idea of transforming the weakest cooperatives into a loose cooperation of private producers also arose. In Central-Eastern Europe, however, these changes coincided with the final days of planned economies, and at that stage they could not produce perceptible results: the agricultural reform attempts were interwoven with the changes brought about by difficult economic circumstances and political tensions, and the economic machinery of the party-state had no time to carry them out.

In the second half of 1989, the political tide sweeping Central-Eastern Europe created a new era in agricultural development. Attempts to reform the socialist agricultural systems were eclipsed by efforts to form a completely new agrarian structure. This change is most discernible in the former GDR, Hungary, Poland, and Czechoslovakia, where the introduction of a real multiparty system ended the power of the Communist Party.

Similar progress is occurring in Romania and Bulgaria. The postcommunist parties remain rather stable, but future political perspectives are murky, making predictions of agricultural development difficult. The main characteristics of change in the former USSR resemble those of Central-Eastern Europe. The dissolution of the Soviet Union has created the political conditions for a real change in agriculture; however, a detailed agenda for the transformation of agriculture emerged only at the beginning of 1992.

Major Transitional Issues

The aftermath of decades of socialism is largely similar throughout the region. The agricultural sector of Central-Eastern Europe and the former USSR on the eve of the transformation is characterized by:[1]

- large, inefficient farms with high production costs;
- a high level of food consumption relative to market economies of comparable prosperity;
- subsidized food prices;
- excess demand for food at subsidized prices;
- macroeconomic imbalance, including budget deficits, inflation, and foreign debt;
- a pervasive monopoly in food processing and distribution.

The main direction of the transformation of the region's agrarian economies is shaped by the legacy of the command economy. In each country, the objective is to develop an agricultural structure based on a market economy, which leads to private initiatives and an economy based on private ownership. The most important components in developing a market-oriented and competitive agricultural structure are:

- the creation of marketable landed property;
- an emphasis on medium-size private agricultural ventures and various cooperatives, together with state or communal farms;
- a governmental attitude that encourages and supports the emerging private ventures and fosters the transformation of the cooperative sector;

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[1] See Brooks 1991.

- a real agricultural market that guarantees the conditions for fair competition through its overall rules, physical conditions, and institutions;

- an agricultural policy that emphasizes production efficiency through the same means applied in the market-oriented, developed countries and that also enforces the traditional objectives of agricultural policy. Income parity of agricultural producers is necessary;

- a fundamental change in the role of government, including the reassessment of the agricultural sector within the macroeconomic framework;

- increased environmental protection and support of the application of environmentally sustainable agricultural production technologies.

These actions constitute a package that should be implemented in an expedited, coordinated manner. Experience in the transformation of agriculture in other formerly socialist countries indicates that consistent reform packages implemented quickly lead to faster and more visible positive results, versus partial, stop-and-go actions. Furthermore, political transformation—the introduction of a democratic, multiparty political structure—is an essential precondition of a successful move toward a market economy in any formerly socialist country.

Landed Property: Reprivatization

One of the most debated political and economic questions in the region concerns landed property. The creation of marketable landed property, the rehabilitation of land as the valuable means of production of agriculture, is unavoidable. Adjusting the farming structure to market economy conditions is also necessary. There are several ways to do this.

First, landed property relations in Central-Eastern Europe should be surveyed. Land generally was not nationalized after World War II, although it was later collectivized. In addition to state property, cooperative landed property also arose, and, in various forms, private landed property also existed. Over the years, proprietary rights became a formality. With the abolition of a land market, land lost its character of valuable means.[2] In Central-Eastern Europe the most important current proposals on landed property are to:

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[2] In Central-Eastern Europe the value of land cannot be found in the registry of agricultural implements, nor is the price of land calculated in the various expenses.

- keep the present forms of property and to use the land through leasing;
- make the land the property of those who want to pursue agricultural production;
- on the basis of proprietary rights before collectivization, give land to those who want to work in agriculture and financially compensate the earlier proprietors who did not take an active part in agricultural production;
- treat land ownership as an integrated element of an overall compensation and privatization package;
- restore the landed property relations that existed prior to collectivization with no restrictions.

During the last year, land ownership has been the focal point of heated political debate throughout Central-Eastern Europe. Legislation related to land has been passed in Romania, Bulgaria, Hungary, and Czechoslovakia. Each of these laws recognizes private land ownership and the rights of landowners immediately prior to collectivization, and they establish a procedure, which differs by country, for reinstating property rights.

In Romania and Bulgaria, households can claim a limited amount of land based on a variety of evidence to support their claims. In Romania, the restitution of former land ownership began relatively quickly and has occurred without any intention of creating farms of optimal size or determining how farming will take place after the land is distributed. The Bulgarian approach attempts to construct appropriate holdings through administrative assignment. Although this method is slow, political tension has thus far delayed almost any implementation.

In Hungary, the initial attempt in 1990 to return agricultural land to prior owners was blocked by the Constitutional Court, with the ruling that land ownership must be treated similarly to that of other assets. In 1991, landowners and dispossessed owners of other property were granted vouchers redeemable for agricultural land and other assets, providing essentially monetary compensation for prior owners of land and other assets. Landowners who continued to hold title to land managed by cooperatives are granted the return of their management rights unconditionally. In Czechoslovakia, the law mandates return of agricultural land to prior owners who will cultivate it. Little interest in claiming land has been reported thus far.

In Poland, where most of the land has always been in private ownership and use, the future of state farmland (about 20 percent of total farmland) has not yet been discussed. Land ownership is more complicated in the former USSR, where land was nationalized in 1917 and later collectivized. Solutions similar to the land laws of Bulgaria, Czechoslovakia, Romania, or Hungary are feasible only in the Baltic area, where former owners can be identified. In the rest of the former USSR, restitution of former land ownership is unlikely. The presidential decree on the continuation of land reform. issued in December 1991, has made substantial steps toward the establishment of private land ownership. Guidelines for *kolkhoz/sovkhoz* (state and collective farm) restructuring were also set. During 1992, a substantial portion of land (30 to 40 percent) will probably be distributed among individuals. A proposed constitutional amendment will further facilitate unrestricted, fully private land ownership.

Change in the Farming Structure

The agrarian structure of the region was formed by the collectivization process of the postwar period. The objectives of collectivization were similar among countries, but there were major differences in the methods of execution and in each country's developed structure. In the former GDR, Czechoslovakia, Bulgaria, and Romania, the socialist reorganization of agriculture was carried out according to the Soviet model. In these countries the typical form of agricultural enterprise was the state or cooperative large-scale farm of several thousand hectares. In Bulgaria agroindustrial complexes represented a fusion of the state and cooperative farms. In the mid-1980s in Bulgaria, 150 enormous complexes were operating, spanning most of the agricultural land. A particular characteristic of the former GDR was the separation of crop and livestock systems. Collectivization in Hungary reflected cooperatives' independence, and private agricultural production existed within household farming plots. Poland preserved the predominance of private farms, but the government impeded their progress for a long time.

Few classical private farms could survive the reorganization of agriculture in the region. The private sector was driven to the fringes of the economy, involving primarily household farms and part-time agricultural production. The political attitude toward these activities changed frequently. Only in Hungary was household and complementary agricultural farming continually tolerated and often supported by the system. The private growers dealt primarily with animal husbandry and gardening, with grain production and plant cultivation almost exclusively concentrated in the big farms. The rate of private production was lowest in the former GDR (about 10 percent), and, apart from Poland, the rate was highest in Hungary, where one-third of agricultural production came from the private sector. In Czechoslovakia, the contribution of private production to total agricultural production was 10 to 12 percent, and in Bulgaria it was about 25 percent (reliable figures are not available for Romania).

What will the future of cooperatives and state farms be in the transforming Central-Eastern European agricultural economy? In their present form, these farms are not suited to a market economy: they are too large and are not profit-centered. The future of cooperative farms is the most debated issue. In the early stages of the transition, the complete disappearance of these farms was expected. It is now clear that a high proportion of cooperative members do not wish to pursue completely independent farming, at least in the short run. They want well-defined and freely transferable ownership rights, as well as autonomy, combined with the protective network of cooperation. Probably, therefore, only a small portion of cooperatives will be completely dismantled. New forms of cooperatives focused more on service processing and marketing will emerge. This looser form of cooperation will probably pave the way for the move toward individual farming at a later stage.

Private production will gain strength and proliferate, and the number of private farms will increase. Because the conditions for fully independent private farming beyond the level of production for self-consumption and local markets do not exist in most places, however, a sizable proportion of cooperatives are reluctant to pursue completely independent farming. They view private farming as constrained by numerous factors. Most have not accumulated savings sufficient to begin independent farming operations, nor do they have the collateral required to obtain credit on reasonable terms. In the region's rural areas, only pure savings banks, with no other functions, are operating. In larger settlements, the agricultural banks only lend funds for planned activities of large-scale cooperatives and state farms. There are no branch banks or staff able to process credit applications or handle private farmers' credit needs. In addition, there are practically no input supply and product marketing channels outside the rigid state monopoly. There is no network of rural shops selling inputs and instruments for private farming and no system for farm-level purchase or wholesaling of agricultural products. Auctions, farmers' markets, and transport are inadequate. Technical services and equipment for private farming are barely available. Above all, cooperative members and state farm employees have limited knowledge of business operations, financing, accounting, taxation, and risk taking.

Because of these obstacles, cooperation among private farmers will be essential—in finance, marketing, and technical services. New private service cooperatives might be based on the core of the existing cooperative farms. Farmers should be free, however, to choose the forms of cooperation they prefer, and the new cooperation must be based on private ownership and competition. There is no experience and limited information available concerning private cooperatives; therefore, the foundation of the new cooperatives should be supported by the government. International aid might also be appropriate in this area in the form of training and direct technical assistance. Promotion programs (advice, technical assistance, etc.) should also be organized to help those farmers who choose fully independent private farming.

For state farms, privatization begun in other economic sectors should be considered. A small number of joint-stock state farms will continue in the region, and their role will be important in seed grain and breeding stock supply and in extension services. Some are expected to function as diversified agribusinesses. They could also be a crucial springboard to the participation of foreign capital in agricultural production. In addition, a substantial portion of state farmland will probably revert to private ownership.

A Real Market for Agricultural Products

Direct government intervention in agricultural commodity and input marketing has distorted resource use and created serious food shortages and social tensions. All of the countries concerned have taken the first steps toward dismantling the command economy and introducing a market-controlled system in agriculture. As the experiences of Poland, Hungary, and Czechoslovakia indicate, the next crucial step is reform of agricultural price policy. The main element of this reform, especially in the former USSR, is free-market agricultural producer pricing, with price policies (not delivery targets) only for basic grains and animal products to eliminate excessive random and cyclical price fluctuations. Free-market consumer pricing of agricultural commodities should also be expanded beyond the horticultural and livestock products produced on private plots. In the least-developed part of the region, a limited number and amount of low-priced basic food items may need to be provided at the existing government ration shops during a short transition, with food aid and imports to secure availability of the rationed products. Food subsidies, however, should be fully eliminated within a few years. Freeing of market prices for agricultural inputs and services should parallel reorganization of the input supply and service sector.

The state monopoly on foreign trade is another serious obstacle. Foreign trade must become a right and a potential activity of each business entity in agriculture. Together with the disappearance of the state monopoly on foreign trade, a new foreign marketing structure, including competitive trading houses and direct sales by producers, should take shape relatively soon. Centralized decisionmaking with licensing requirements should be replaced by a coordinated system of tariffs, customs, and taxes. Steps toward liberalization of foreign currency regulations are also crucial for development of viable agricultural trade.

The new agroeconomic structure presumes that free markets in the food economy can be developed and implemented. The total market system must supply markets for inputs, domestic food, and international agricultural and livestock products. The tasks required for creation of this system have organizational, institutional, legal, and regulatory aspects. A fundamental requirement is to design agricultural production processes through to retail sale and to shape the supply of the means of production into a unified system joined by free economic relations.

The supply of basic inputs and machinery services is critical to the emerging private sector. Currently, neither the required distribution structure nor critical inputs exist in most of the countries concerned. Tractors and other machinery suitable for small-scale farming are also not available in most of the region. Because development of a private commercial system is the best way of supplying inputs and machinery services, a network of farm supply shops should be created shortly. For the short term in many areas, especially the former USSR, Bulgaria, and Romania, the new cooperatives can be the major institutions of supply, if they are established soon. Over the long run, private firms, including foreign ones, are likely to be involved. Development of a nationwide commercial network of supply, however, will require several years; therefore, imported tractors and other farm machinery should be offered both to the service enterprises and to private cooperatives and farmers. Credit availability to cover inputs and services should also be organized.

The government's role is to assist the emergence of wholesale marketing and encourage retailing and processing firms to develop their own purchasing activities. It should quickly create competing buyers by subdividing state-owned trade and processing monopolies. Government assistance and promotion have critical importance now because the emerging private farmers' markets provide limited opportunities for marketing, and product shortages are also an obstacle. Therefore, it is important to create the minimum physical facilities for farmers' markets and a wholesaling network designed for private farming as soon as possible.

Currently, the need to simply create a marketing structure for farm products represents a major hurdle, but at a later stage the new market structure should include improved physical facilities such as auction halls, city markets, regional cooperative packing and grading facilities, and transportation equipment. Market information services for farmers should also be available, i.e., radio and television programs and farm newspapers. The more developed domestic agricultural markets will require a commodity exchange. (Commodity exchanges are already operating in Hungary and in the former USSR.) More efficient and coordinated international marketing for agriculture should be supported by commercial export marketing organizations.

A New Role for Government and a New Macroeconomic Framework for Agriculture

The transition to a market economy requires a fundamental change in a government's role in agriculture and in the economy in general. Direct government intervention in the agricultural sector, such as establishment of mandatory targets for production and/or delivery of goods and central distribution of investments and inputs, has ended. The appropriate government role in the sector will be to establish the ground rules and facilitate the conditions for smooth and prosperous operation of markets and independent business organizations. This role is as important as the previous one governments assumed; however, it requires different means, institutions, and philosophy.

The end of central planning creates the need for a new macroeconomic framework for agriculture that permits implementation of governmental agricultural policies through economic means used in other market economies. All of the countries concerned aim to develop an internationally competitive agriculture with sustained growth. They also seek to establish private ownership and market control. This will require a macroeconomic framework for agriculture that includes an appropriate price policy and system of taxation supportive of production and improved well-being of the farming population. In tandem with the liberalization of producer prices, an agricultural tax system should be introduced to avoid sudden rural income inequities, to maintain urban-rural income equity, and to increase government revenues.

In a move toward a new macroeconomic framework for agriculture, the Central-Eastern European countries took substantial steps toward liberalizing consumer and producer food prices and eliminating subsidies during 1990-91. There has been almost complete liberalization in Poland, Hungary, and Czechoslovakia, whereas in Romania and Bulgaria the process has been less complete. Presently, the full results of these moves cannot be analyzed in detail; however, one can conclude that liberalization of food prices in Central-Eastern Europe has been successful. Food prices increased everywhere by 30 to 40 percent; however, they later began to decline in response to excess supply. Consumer adjustment has been remarkable, whereas producer adjustment has been slower. Food price liberalization occurred in the virtual absence of any safety net. Citizens were granted partial monetary compensation, but targeted programs of direct food relief were not attempted anywhere.

Most food prices were liberalized in Russia and in most of the other republics of the former USSR in January 1992. The promising experiences in Central-Eastern Europe encouraged this recent price liberalization, and initial results have been positive.

The dismantling of the bureaucratic structure of central planning is an important task at all levels. Radical modification and merger of some ministries are needed. Units related to central command and direct intervention should be fully dismantled; the remainder, along with new units, should be managed and organized to meet the needs of a free-market system. Market *regulation*, not management, and trade policy functions should be assumed by the ministry of agriculture and other government agencies. As transition proceeds, the entire structure can be further simplified, with fewer institutional units and employees.

Changes are also needed in the structure of regional units, which should be redeveloped within the framework of self-government and overall reform of local administration. In the former USSR, for example, an enormous bureaucracy related to the implementation of central control still exists at the regional level. In its current form, this entity is unnecessary. A relatively small administration would be adequate to enforce agricultural regulations, promote development, and provide extension and market information services.

Changes, however, will substantially reduce the number of those employed in administration. The ongoing change in cooperatives and state farms will also free a large number of skilled agricultural technicians, who currently work in various farm managerial positions. Most of these experts will be needed in the extension and training services. The future careers of these experts, however, should be assisted by providing retraining opportunities and financial assistance to enter private business.

A predominantly private-ownership-based agriculture requi s organized extension service channels to disseminate new technologies and information to farı. rs with the establishment and financing of an extension network mainly a governmental responsibility. Modified research and service stations, as well as universities, provide good starting points, and careful design of national extension service networks should be stressed.

A New Legal Framework

Establishing a market economy requires the development of a new legal framework, essential for both the transition and operation of the new system. For agriculture, several legal instruments are needed immediately to facilitate a smooth transition. A land law (discussed above) that defines specific ownership and land use rights—establishing private, communal, and public land ownership—is required. It should also describe the process of distributing ownership titles; the method of handling former owners' claims; and the principles of land ownership policy, e.g., limits on holding size, foreign ownership, and land ownership transferability. A law on the transformation of agricultural cooperatives is also needed. It should specify the process for transferring land and other assets of cooperatives to private ownership. It should be a basic principle that new cooperatives be based on private property and voluntary membership. Legislation on the transformation of state farms, i.e., the needed privatization and management changes, should be similar to that for other state-owned enterprises.

The legal framework required also involves components that might be completed at a later stage of transition. These include a law that establishes the basic principles of private cooperatives for agriculture and other sectors, and an agricultural marketing law creating an agricultural market regime that describes the rules of agricultural markets: establishment of the principles of fair competition, anticartel policy, and quality control. Also at a later stage, general regulations for agriculture, forestry, and hunting and fishing must be established according to the new ownership structure and economic management philosophy. Moreover, it will be essential to harmonize legislation related to agricultural trade with that of the EC.

Increased Focus on the Environment

The countryside of Central-Eastern Europe and the former USSR has experienced environmental damage as a result of inadequate agricultural practices, particularly reflected in serious degradation of soil resources in hilly areas. There are also acute indications of industrial pollution of agricultural land and water resources. Globally, the approximation of agricultural production methods to the manufacturing model has resulted in an energy-intensive technology strongly dependent on industrial inputs and disruptive to natural ecological processes. This induces harmful environmental effects that rich countries have attempted to counterbalance with a system of interventions and supports. Developed countries are discarding as obsolete technologies still believed to be revolutionary in developing countries. During the transitional phase, environmental policy in the region must repair damages done by and to agriculture and promote the development and application of environmentally friendly technologies for agricultural production, including appropriate land use and tillage practices and integrated pest management. The most dangerous industrial mismanagement, oil pollution of water and soil, should be stopped immediately.

Environmental protection and sustainable land use must be high priorities in establishing new agricultural policies. Greater scope must be given to technologies that are less energy- and materials-intensive, and protecting the soil and safeguarding its quality must become fundamental criteria for agricultural production. The principal goal is the prevention of environmental degradation or pollution and the reduction of technological processes and by-products harmful to the environment. The proportion of waste-free or recycling technologies should be increased; technologies preserving the original property of the basic material given greater emphasis; and the use of chemicals rationalized.

Rearrangement of Intersectoral Linkages

A basic requirement for adaptation of the region's agriculture to the developed market economy is the formation of a uniform, interwoven system for agricultural production/marketing and the production/supply of capital goods. The strategies of agricultural domestic marketing and exports, and the structure and mechanism by which they are conducted, require that producers be supported by agricultural marketing policy coordinated at the national level. The experience of developed countries that export agricultural products proves that there is a need for market policy differentiated for the individual markets, with the entire production and marketing process mobilized appropriately. Processing is a bottleneck that is particularly serious for food exports. With demanding international markets, improved food processing is an indispensable condition for international competitiveness and improved export efficiency. Improved processing is also becoming increasingly important for domestic consumers. The actual development of food processing should be a private sector activity, but the government could promote this process by providing incentives for both domestic and foreign investors.

The future of agriculture in the region cannot be separated from other economic sectors, with the success of restructuring in the agricultural sphere substantially dependent on the evolution of conditions outside the sector. The creation of a market economy and a system of private ownership in itself will make the conditions for improved agricultural performance more favorable. However, the pace at which industry and basic infrastructure change, and the extent to which the domestic industrial and service context for agricultural production expands and develops, is crucial. Without congenial input-output facilities and services for marketing, processing, and transport, agricultural sector growth will be seriously constrained.

The desired state of agriculture in Central-Eastern Europe and the former USSR cannot be achieved without addressing alternative rural (and urban) employment opportunities. Increased nonagricultural activity in rural areas will positively affect demand for agricultural products, and the development of rural industries will affect both agriculture as well as the entire economy. Therefore, the establishment of promotion programs for rural industries, such as handicrafts, labor-intensive industrial activities, food processing, and tourism, is necessary.

Future Perspectives and Anticipated Market Behavior

In view of the changes in agricultural policy, predicting the market behavior of Central-Eastern Europe countries is not easy, nor is forecasting their probable exports and imports of agricultural products. In analyzing the future possibilities of and influences on the region's agricultural markets, three main questions arise:

1. What will be the trend in food production, particularly for grain and meat?

2. Can an increase in food consumption be expected, and how will it affect domestic markets?

3. How will the international environment evolve? How much will the trade policy conditions for agricultural exports improve, and how will relations among countries change?

Agricultural production in the region has generally been characterized by a decline in the growth rate of agricultural output and, in some countries, stagnation, or even a drop in production, especially in the livestock subsector. These developments can be explained by:

- the obsolete technical basis of agricultural production and food processing;
- the low yields and outdated conditions of animal farming;
- the acute lack of capital;
- the inflexible operating structure;
- the unfavorable effects of the first steps taken toward a market economy;
- the political tension and uncertainty caused by the changes underway (such as the land law).

The change in the political and economic regime has itself partly created the conditions for advancement. Privatization and opening up of the economy permit easing of the shortage of capital, encouragement of foreign capital, import of efficient technologies, and radical transformation of the entrepreneurial structure. How rapidly will these influences predominate in the countries concerned and result in the stabilization of agricultural production? In those countries where food shortages (especially of meat) remain a decisive factor, the unsatisfied demand could be an important incentive for increasing production; however, the liberalization of prices and the dismantling of subsidies have begun in these countries, and an equilibrium of demand and supply will probably be reached.

In view of the above, three possible medium-term development courses for agricultural production in the region merit attention:

1. With falling demand resulting from the general economic crisis and the tensions and uncertainties induced by political change, growth in agricultural production will cease, and production will decline for several years. Recovery or possible increase in output will not occur until the second half of the 1990s;

2. Reform measures and price liberalization will influence agricultural production relatively quickly. There will be no decline in production; rather, the growth rate

of food production will accelerate over the short term, and an appreciable upswing will begin in the near future;

3. Agriculture will stagnate. Production as a whole will increase slightly or will stagnate with large fluctuations among sectors and countries, remaining below the world growth rate until the end of the decade.

There will be considerable differentiation in agricultural development within the region. Any of the three scenarios above could occur in any of the countries; probably, however, no one scenario will characterize the entire region. The countries with the most-developed agriculture (Hungary, Czechoslovakia, and Poland) will be characterized by the first trend outlined. The greatest probability of the second scenario is in Romania and Bulgaria, and it could occur in the former USSR, if conditions are optimal, although the probability is quite small. The former USSR will probably be characterized by the third scenario, assuming that reforms will be slowed by the process of disintegration and that political and economic tensions will become prolonged.

Within the next few years, no real improvement is expected in the incomes and living standards of the region's population as a whole. There will almost certainly, however, be an increase in the differentiation of incomes, and social tensions will intensify. The following conclusions can therefore be drawn regarding food demand:

- Regarding food staples, neither expanded demand nor substantial quantitative growth in consumption is expected;
- Demand will generally shift toward cheaper, lower-quality foods;
- As a result of the differentiation in incomes, there will be an increase in demand for the more highly processed, top-quality food products.

The region's international agricultural trade system is undergoing a fundamental transformation. The system of relations that directed the food sales of the Central-Eastern European countries within the CMEA (the so-called socialist bloc) primarily to the former USSR has disintegrated. The economic crisis of the former USSR is seriously affecting its food imports from Central-Eastern Europe. By 1990 there was considerable decline in agricultural exports from Central-Eastern Europe to the former USSR, with further decline likely. Nevertheless, these interrelationships will probably not entirely disappear. The comprehensive energy supply system from the former USSR to Central-Eastern Europe and the forecast oil glut on the world markets, as well as the agricultural product—especially meat—surpluses of Central-Eastern Europe, will recast these relationships. Central-Eastern Europe's agricultural trade with the former USSR, however, is unlikely to reach its earlier level within the near future. In addition, there are obstacles to the agricultural trade conducted among Central-Eastern European countries; the lack of liquidity raises rigid barriers. Recent developments, however, suggest that within the framework of the emerging market economy, these relationships will be revived relatively quickly and become significant.

Concurrent with the disintegration of the traditional CMEA relations, the conditions for agricultural trade with the developed world have become more favorable. In the agricultural exporting countries of Central-Eastern Europe, earlier, largely discriminatory measures have yielded to greater market access. Nevertheless, the EC, as well as most of the countries in the region, is reserved regarding the conditions of agricultural trade. Yet the access of Central-Eastern European meat and other products to Western markets is already more favorable than at any time during the past two decades. Associate membership in the EC offers further possibilities for Czechoslovakia, Hungary, and Poland.

The former USSR is increasingly replacing agricultural imports from Central-Eastern Europe with purchases from the OECD countries. These are usually agricultural products (mainly grain and meat) supported by credit and purchased at favorable prices, and generally of lower quality. Partly out of political motivation, the developed countries are prepared to continue extending credit to the former USSR for the purchase of meat. In view of the economic situation and internal political tensions, however, how long this practice will continue is questionable.

The opening of food production in Central-Eastern Europe and, to a lesser extent, in the former USSR, will encourage foreign capital. Currently, processing and sales are bottlenecks in agricultural production in Central-Eastern Europe, and it is in these areas that the entry of foreign capital and multinational food corporations can be expected. Consequently, there will be improvement in the quality and range of Central-Eastern European processed agricultural products, leading to greater competition in increasingly demanding markets. In the former USSR, however, substantial foreign capital in agricultural production is not likely in the near future.

In food production and sales, the creation of a market economy and fully market-compatible solutions will not be achieved overnight. Moreover, the payment problems of the countries concerned will remain serious. Consequently, trade policy in the region, especially in the former USSR, will continue to emphasize bilateral relations and trade equilibrium with different partners. Even over the medium term, a substantial portion of agricultural trade will be conducted not in free foreign exchange, but as part of complicated, sometimes multilateral, barter-type agreements. The proportion of such deals will remain particularly high in trade with the former USSR.

Based on the above discussion, the following general conclusions can be drawn regarding the expected behavior of the region on the international market. The countries of Central-Eastern Europe have substantial comparative advantages and existing production capacity in agricultural production. However, the countries' economic difficulties and the lack of funds available for export subsidies restrict export ambitions. Concurrently, international payment obligations are an incentive for the maximum increase of exports to the developed countries and the limitation of imports to the absolutely essential. Because an expansion in agricultural exports is easier to achieve over the shorter term than an increase in sales of manufactured goods, the countries concerned will make greater efforts to increase agricultural exports, especially meat, to the developed-country markets.

Expansion of exports can be expected despite stagnation or possible decline in production: stagnant domestic consumption and a shrinking market in the former USSR will permit this expansion. Over the short term, the reduction in the livestock population will further increase the quantity of meat available for export. At the same time, Central-Eastern European exports will expand quantitatively and qualitatively, characterized by higher quality, a range better adapted to the market, and more effective marketing, which could induce an appreciable change in the market for certain products. Central-Eastern Europe could become a tougher, more aggressive actor, principally in the markets for more demanding food products, particularly pork, poultry, and fruits and vegetables.

Although it has the conditions for self-sufficiency in food products, the former USSR will remain a net agricultural importer over the medium term. Economic difficulties, however, will probably prevent the expansion of the level of food imports established in earlier years, and in the coming years imports from Central-Eastern Europe may remain below the exceptionally high levels of the second half of the 1980s. Consequently, there could be a further expansion of food imports from the developed countries to the former USSR. Over the medium term, the volume of purchases will be determined by the readiness of the dealing countries to extend credit and the terms of such credit.

Table 1. Population and Arable Land Resources of Eastern Europe and the USSR, 1988

	Population					Arable land	
	Total		Economically active				
	(millions)	% of world total	Total (millions)	In agriculture (millions)	Agric. as % of total	('000 ha)	% of world total
Bulgaria	8.99	0.18	4.50	0.60	13.30	3,825.00	0.30
Czechoslov.	15.62	0.31	8.20	0.80	9.80	5,000.00	0.40
GDR	16.67	0.33	9.50	0.80	8.40	4,694.00	0.30
Hungary	10.60	0.21	5.20	0.70	13.50	5,048.00	0.40
Poland	37.86	0.74	19.30	4.30	22.30	14,480.00	1.10
Romania	23.05	0.45	11.60	2.60	22.40	10,080.00	0.70
EEUR/6	112.79	2.22	58.30	9.80	16.80	43,127.00	3.20
USSR	283.68	5.55	143.60	20.40	14.20	228,200.00	16.60
EEUR+USSR	396.47	7.77	201.90	30.20	15.00	271,327.00	19.80
World	5,112.00	100.00	2,285.00	1,083.00	47.40	1,373,200.00	100.00

Source: FAO Production Yearbook 1988, Rome, 1989; *Hungarian Statistical Pocket Book, 1989*, Central Statistical Office (KSH), Budapest, 1990.

Table 2. Growth of Gross Agricultural Output since 1970
(annualized percentage change in volume)

	1971-75	1976-80	1981-85	1986-88	1989	1990
Bulgaria	2.2	2.1	1.2	-0.3	0.3	-1.4
Czechoslovakia	3.8	2.7	3.4	3.8	0.0	1.3
GDR	2.2	1.4	1.6	2.2	-2.7	2.5
Hungary	3.9	3.9	2.4	0.2	-0.2	-9.0
Poland	3.2	0.6	-0.5	2.8	1.3	-9.0
Romania	4.7	4.7	2.0	9.9[a]	-4.9	2.4
USSR	2.5	1.7	1.1	2.9	1.3	-2.3

Note: Figures indicate annualized changes between periods shown and previous five-year period.

a. 1986-87.

Source: UN/ECE Common Data Base.

Table 3. Grain Production
(million mt)

	Bulgaria	Czecho-slovakia	GDR	Hungary	Poland	Romania	EEUR/6	USSR	EEUR+ USSR
1976-80	7.8	10.0	9.0	12.6	14.5	14.4	68.3	205.0	273.3
1981-85	8.2	10.4	10.4	14.4	22.2	21.7	87.3	180.3	267.6
1986	8.5	10.8	11.7	14.3	25.1	24.1	94.5	210.1	304.6
1987	7.2	11.8	11.3	14.2	26.1	17.5	88.1	211.4	299.5
1988	7.8	11.9	9.8	15.0	22.7	14.5	81.7	145.0	281.7
1989	8.0	11.7	10.8	14.7	26.8	14.3	86.3	211.0	297.3

Source: National statistical yearbooks.

Table 4. Average Yields of Major Crops, 1990
(kg/ha)

	Wheat	Corn	Barley	Rice	Sugar beet	Sunflower
Bulgaria	3,947	4,000	3,889	n/a	22,519	1,731
Czechoslovakia	5,153	6,144	4,679	n/a	34,845	2,352
GDR	5,732	n/a	5,222	n/a	28,650	n/a
Hungary	4,927	4,091	4,594	n/a	47,961	1,879
Poland	3,727	n/a	3,333	n/a	34,008	n/a
Romania	3,333	3,172	4,079	3,211	25,577	1,674
USSR	2,264	3,852	2,153	4,592	29,456	1,504
World	2,586	3,653	2,477	3,557	35,573	1,394

n/a = Not applicable.

Source: Agriculture and Food Processing, 1990, Hungarian Ministry of Agriculture, Budapest.

Table 5. Meat Production
('000 mt)

	1975	1980	1985	1989	1989 as % of 1970	1989 as % of world total
Bulgaria	553	651	723	814	147.20	0.48
Czechoslovakia	1,304	1,426	1,486	1,635	125.40	0.97
GDR	1,721	1,783	1,914	1,987	115.50	1.18
Hungary	1,297	1,441	1,595	1,588	122.40	0.94
Poland	2,786	2,858	2,513	2,801	100.50	1.66
Romania	1,337	1,774	1,835	1,628	121.80	0.96
EEUR/6	8,998	9,933	10,066	10,453	116.20	6.19
USSR	15,060	14,981	17,131	19,970	132.60	11.83
World	119,853	141,081	151,209	168,860	140.90	100.00

Source: FAO production yearbooks, 1975-89, Rome.

Table 6. Tractors Used in Agricultural Production
('000)

	1985	1986	1987	1988	1989	1990
Bulgaria	55	54	54	54	n/a	n/a
Czechoslovakia	137	139	140	141	n/a	n/a
GDR	158	162	165	168	n/a	n/a
Hungary	55	54	54	53	52	50
Poland	924	989	1,044	1,101	1,153	n/a
Romania	184	194	184	183	n/a	n/a
USSR	2,798	2,854	2,735	2,692	2,689	2,630
World	24,504	25,284	25,535	25,865	n/a	n/a

n/a = Not available.

Source: Agriculture and Food Processing, 1990, Hungarian Ministry of Agriculture, Budapest.

Table 7. Consumption of Major Food Products, 1989
(kg/capita)

	Meat converted to meat	Milk and dairy products converted to milk	Sugar converted to white sugar	Cereals converted to flour	Vegetable converted to fresh	Eggs (pieces)
Bulgaria	79.3	275.0	35.0	146.0	136.0	136.0
Hungary	78.2	134.0	34.0	108.0	88.0	315.0
GDR	100.2	n/a	41.4	90.0	106.0	106.0
Poland	76.1	415.0	46.2	119.0	115.0	115.0
Romania	52.0	132.6[a]	20.3[a]	175.0[b]	113.0[a]	n/a
Czechoslovakia	88.0	253.0	40.4	113.0	81.0	345.0
USSR	67.0	363.0	42.5	129.0	9.5	268.0

n/a = Not available.

a. 1985 data.

b. 1980 data.

Source: CMEA Yearbook, Moscow, 1990.

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